

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER M.TECH DEGREE EXAMINATION (Regular), JULY 2022**(2021 Scheme)****Course Code: 21MD205-F****Course Name: Design for Energy Efficient Built Structures****Max. Marks: 60****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Define the essential design comfort conditions for indoors regions.
2. What is Spectral selective glazing?
3.
 - a) Are passive cooling strategies recommended in green building design?
 - b) List the various passive cooling methods
4. Properly differentiate the following terminologies
 - a) luminous flux
 - b) luminous intensity
5. Write short notes on occupancy sensors and its significance in energy saving.
6. Define DALI in lighting control system.
7. How can a built structure be rated as a Green building / structure?
8. List any six green building materials that adheres to the very essence of sustainability.

PART B*(Answer one full question from each module, each question carries 6 marks)***MODULE I**

9. Prepare a write up on the various climatic zones in India. (6)

OR

10.
 - a) State the significance of urban heat island effect and its relation with the albedo? (4)
 - b) List the major factors that affect the climate (2)

MODULE II

11.
 - a) Discuss the various design aspects of a building configuration to reduce the heat gain in hot climate. (5)
 - b) Will the same building design for hot climate holds good for cool climates? (1)

OR

12. a) What are smart windows? (2)
b) Briefly explain the significance of smart windows in an energy efficient built structure. (4)

MODULE III

13. How thermal storage systems can be incorporated in building design? (6)

OR

14. a) List the energy conservation techniques in HVAC design. (2)
b) Explain any one energy conservation techniques / design applied in unit air-conditioning systems. (4)

MODULE IV

15. a) "Proper lighting design saves the expended energy in built structure" Justify the statement (2)
b) What are the general rules for lighting design. (4)

OR

16. a) Have solid state lighting practices proved economically viable? (1)
b) Prepare short notes on solid state lighting design and list its advantages. (5)

MODULE V

17. Describe the lighting design for each of following (6)
i) Operation theatre in hospital and
ii) General ward in hospitals.
iii) Home theatre

OR

18. Discuss the various lighting controls incorporated in energy efficient built structures. (6)

MODULE VI

19. Explain the Energy Conservation Building Code in detail. (6)

OR

20. Prepare short notes on (6)
(i) GRIHA
(ii) IGBC
(iii) BEE
